The Mechanics of Metal™ Series

A state-of-the-art instruction course designed to help beginning, intermediate, and advanced guitarists master the art of heavy metal guitar playing.

Lesson 1: Heavy Metal Chord Guide *(with accompanying cassette tape)*

Lesson 2: Total Scales and Modes *(with accompanying cassette tape)*

Lesson 3: Technique and Exercises *(with accompanying cassette tape)*

Lesson 4: Tricks *(with accompanying cassette tape)*

Lesson 5: 100 Versatile Licks and Runs *(with accompanying cassette tape)*

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The Mechanics of Metal™ Series

A SOUND AND ORGANIZED APPROACH TO THE MASTERING OF HEAVY METAL GUITAR



Lesson 2:

TOTAL SCALES AND MODES

TM

The Mechanics of Metal™ Series

A Sound and Organized Approach to the Mastering of Heavy Metal Guitar™

Lesson 2: Total Scales and Modes



All material written, narrated, and performed by Peter Greenfield.

Author's Note

Please read all the material in this booklet <u>BEFORE</u> going on to the cassette tape. Once you've gained a complete understanding of all the written material, use the cassette tape to reinforce and further expand your learning experience.

Much care has been taken so that all the material presented in the Mechanics of Metal™ series can be understood by guitarists at almost any level of playing ability, even those with minimal knowledge of music. To obtain the most benefit from this course, read through all material carefully. Try to absorb each idea completely before going on. If confusion should occur at any point, review the troubled area. After going over it a few times, it should make sense.

Please note that a small number placed above any word or term indicates the lesson in which that word or term is discussed more thoroughly. For example, on page 5, a small "1" appears above the term "chord construction". This means that chord construction is discussed thoroughly in Lesson 1. These references are provided primarily for those who have ordered this lesson individually, and not the entire Mechanics of Metal™ course.

I hope that Lesson 2 enables you to advance your guitar playing. Good luck.

Today's heavy metal guitarist is very scale oriented. The rock guitarists of of earlier years seemed to base their style more around repetitive, bluesy sounding licks. You can still hear a blues influence in many of today's top metal players, but flying up and down exotic sounding scales has become part of the credentials of the twentieth century heavy metal guitarist. Scales can be used to create an atmosphere or depict a mood, as well as provide the framework for flashy, lightening fast runs. Once you've gained a solid knowledge of their application, you can use scales to create country, bluesy, eerie, or sweet melodic sound qualities, whether you're playing a speedy barrage of notes or slow, tasty lines.

Let's get started. Scale construction is very similar to chord construction.[1] All scale types are constructed from the major scale of the same letter name. Any type of "A" scale, whether it is A blues, A diminished, A harmonic minor, etc., will be constructed from the A major scale. Any type of "D" scale (D blues, D diminished, etc.) is constructed from the D major scale, and so forth. The major scale is the "Big Daddy". That shouldn't be too hard to remember. After all, it is called the "major" scale!

If all chords and scales are constructed from the major scale, where does the major scale itself come from? Well, the major scale has its own formula for construction. The major scale is made up of whole-step and half-step "intervals". An interval is the amount of distance between two notes. It was pointed out in Lesson 1 that a half-step is equal to the distance of one fret on the guitar. B to C, C to C#, C# to D, etc. are all half-step intervals. A whole step is equal to the distance of two frets. B to C#, C# to D#, D# to F, etc. are all whole-step intervals.

The major scale is constructed from the following order of intervals: whole-step, whole-step, half-step, whole-step, whole-step, whole-step, half-step. The major scale contains seven different notes, starting and ending on the tonic. (The tonic is also known as the key center or root - the letter name of the scale.) The eighth degree of the major scale is one octave[1] higher than the first degree.

The major scale is listed below in all keys. Notice that each key contains a different amount of sharps and flats. This is because each key must be altered in a different way to fit the major scale interval pattern. There are seven keys containing sharps and seven keys containing flats. The key of C is the only key that contains no sharps or flats. (If there is any confusion concerning sharps (♯) and flats (♭), please refer to Lesson 1.)

Key of C:	C	D	E	F	G	A	B	C
	Whole-Step	Whole-Step	Half-Step	Whole-Step	Whole-Step	Whole-Step	Half-Step	

Key of G:	G	A	B	C	D	E	F♯	G
Key of D:	D	E	F♯	G	A	B	C♯	D
Key of A:	A	B	C♯	D	E	F♯	G♯	A
Key of E:	E	F♯	G♯	A	B	C♯	D♯	E
Key of B:	B	C♯	D♯	E	F♯	G♯	A♯	B
Key of F♯:	F♯	G♯	A♯	B	C♯	D♯	E♯	F♯
Key of C♯:	C♯	D♯	E♯	F♯	G♯	A♯	B♯	C♯
Key of F:	F	G	A	B♭	C	D	E	F
Key of B♭:	B♭	C	D	E♭	F	G	A	B♭
Key of E♭:	E♭	F	G	A♭	B♭	C	D	E♭
Key of A♭:	A♭	B♭	C	D♭	E♭	F	G	A♭
Key of D♭:	D♭	E♭	F	G♭	A♭	B♭	C	D♭
Key of G♭:	G♭	A♭	B♭	C♭	D♭	E♭	F	G♭
Key of C♭:	C♭	D♭	E♭	F♭	G♭	A♭	B♭	C♭

Now that we have covered major scale construction, let's see how the major scale is used to construct all other scale types. Just as every chord type has its own formula for construction, every scale type has its own formula too. The formula for the blues scale is 1, ♭3, 4, ♭5, 5, ♭7. This means that the blues scale consists of the first degree (or root), flatted

third degree, fourth degree, flatted fifth degree, fifth degree, and flatted seventh degree of its major scale. To construct a blues scale in any key, apply the blues scale formula to the major scale of the desired key.

Blues Scale Construction - Key of A

A major scale:	A	B	C♯	D	E	F♯	G♯	A
	1	2	3	4	5	6	7	8

Blues scale formula: 1, ♭3, 4, ♭5, 5, ♭7

A blues scale: A, C, D, E♭, E, G

To construct a diminished scale in any key, apply the diminished scale formula to the major scale of the desired key.

Diminished Scale Construction - Key of E

E major scale:	E	F♯	G♯	A	B	C♯	D♯	E
	1	2	3	4	5	6	7	8

Diminished scale formula: 1, 2, ♭3, 4, ♭5, ♭6, 6, 7

E diminished scale: E, F♯, G, A, B♭, C, C♯, D♯

To construct a harmonic minor scale in any key, apply the harmonic minor scale formula to the major scale of the desired key.

Harmonic Minor Scale Construction - Key of G

G major scale:	G	A	B	C	D	E	F♯	G
	1	2	3	4	5	6	7	8

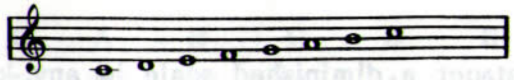
Harmonic minor scale formula: 1, 2, ♭3, 4, 5, ♭6, 7

G harmonic minor scale: G, A, B♭, C, D, E♭, F♯
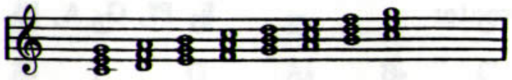
All the different scale types are constructed in the same manner. You just need to know all the formulas, which will be indicated later on.

It is also quite important for you to know the chords that correspond with each scale type for improvisation. In order to understand how chords and scales interrelate, you'll need to gain a complete understanding of "diatonic" chord harmony. (Diatonic meaning coming from or relating to a particular key.)

Below is the C major scale written on the musical staff.



We are now going to "harmonize" the C major scale. This means to actually "stack" two more notes on top of each note in the C major scale to form triads.[1] Only notes contained in the key of C major may be stacked. (No sharps or flats.)



Once the C major scale is harmonized using three notes, the following triads result:

C major	(C, E, G)	G major	(G, B, D)
D minor	(D, F, A)	A minor	(A, C, E)
E minor	(E, G, B)	B diminished	(B, D, F)
F major	(F, A, C)	C major	(C, E, G)

The above chords are said to be diatonic to the key of C

major. If any major scale is harmonized with three notes, these chord types will always result.

We can now conclude the following information about the triads contained in any given key:

The I chord is a major triad.
The II chord is a minor triad.
The III chord is a minor triad.
The IV chord is a major triad.
The V chord is a major triad.
The VI chord is a minor triad.
The VII chord is a diminished triad.
The VIII chord is a major triad.

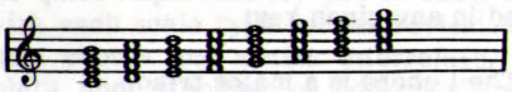
Note: It is standard practice to use Arabic numerals when describing the single note degrees of a scale, and to use Roman numerals when describing chords.

To find the triads contained within any given key, it is not necessary to go through the process of harmoninzing the key's major scale. Simply apply the principles that you've learned about the chords diatonic to any key. Suppose you wanted to know the triads contained in the key of G major. Below is the G major scale. All the scale degrees have been numbered.

G	A	B	C	D	E	F#	G
1	2	3	4	5	6	7	8

Since the first degree of the G major scale is "G", the I chord in the key of G is G major. Since the second degree of the G major scale is "A" the II chord in the key of G is A minor. The III chord is B minor, the IV chord is C major, the V chord is D major, the VI chord is E minor, the VII chord is F# diminished, and the VIII chord is G major. Use this method to find the triads contained in any given key.

We are now going to go back to the C major scale and stack one more note on top of each triad.



Once the C major scale is harmonized using four notes, the following chords result:

C major 7	(C, E, G, B)	G dominant 7	(G, B, D, F)
D minor 7	(D, F, A ,C)	A minor 7	(A, C, E, G)
E minor 7	(E, G, B, D)	B minor 7♭5	(B, D, F, A)
F major 7	(F, A, C, E)	C major 7	(C, E, G, B)

The above chords are diatonic to the key of C major. If any major scale is harmonized with four notes, these chord <u>types</u> will always result.

We can now conclude the following information about the chords contained in any given key:

The I chord is major 7.
The II chord is minor 7.
The III chord is minor 7.
The IV chord is major 7.
The V chord is dominant 7.
The VI chord is minor 7.
The VII chord is minor 7♭5.
The VIII chord is major 7.

Apply the principles of diatonic chord harmony to find the major 7, minor 7, and dominant 7 chords contained in any key.

Actually, you won't see too many of the above chord types in heavy metal. It has already been pointed out in Lesson 1 that

most heavy metal chord progressions (a progression is an organized sequence of chords) consist of power chords.[1] It was also pointed out in Lesson 1 that although the power chord is neither major nor minor, it may "function" as a major or minor chord in a given progression.

A chord progression consisting of E minor, C major, D major, and B minor is in the key of G major. If that same progression consisted of power chords only, it would still be in the key of G major. The E power chord functions as an E minor chord, the C power chord functions as a C major chord, the D power chord functions as a D major chord, and the B power chord functions as a B minor chord. Whether a progression consists of "seventh" chords, triads, or power chords, it is important to know which key the progression is associated with in order to apply the proper scales for improvisation.

By the way, even though you don't use them too often in heavy metal, you may want to make up some progressions using major 7, minor 7, and dominant 7 chord types. Once you know the proper scales to use over them, they provide an interesting, "jazzy" change of pace for improvising.

Before we get to the scales, I would like to discuss one more aspect of music theory. Every major scale is associated with what is known as its "relative minor" scale. The relative minor scale contains the same notes as its major scale, except that the relative minor starts and ends on the major scale's sixth degree.

Look back at the G major scale. The sixth degree of the G major scale is "E". If we take the exact notes of the G major scale (which includes an F♯), and arranged them starting and ending on the scale's sixth degree, the result would be as follows:

E F♯ G A B C D E

The above scale is called E relative minor (also known as

pure minor, natural minor, and the aeolian mode). The E relative minor scale contains the same notes as the G major scale. E minor is said to be relative to G major.

Now look back at the C major scale. The sixth degree of the C major scale is "A". If all the notes contained in the C major scale (no sharps or flats) are arranged starting and ending on the scale's sixth degree, the result would be as follows:

A B C D E F G A

The above scale is called A relative minor. It contains the same notes as the C major scale. A minor is relative to C major.

The chords contained in the relative minor key are also the same chords as contained in its major key. The only difference is that the relative minor key starts on the VI chord.

Chords in the key of G major:

G major, A minor, B minor, C major, D major, E minor, F♯ diminished, G major.

Chords in the key of E minor:

E minor, F♯ diminished, G major, A minor, B minor, C major, D major, E minor.

Chords in the key of C major:

C major, D minor, E minor, F major, G major, A minor, B diminished, C major.

Chords in the key of A minor:

A minor, B diminished, C major, D minor, E minor, F major, G major, A minor.

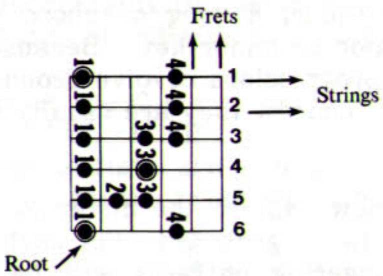
Unless one is speaking of the exact order in which the notes or chords occur, a song or chord progression may be named by its major or minor key. Because most heavy metal songs and chord progressions revolve around power chords that function as minor chords, they are usually named by the minor key.

We will now explore the different scale types as they appear on the guitar fingerboard. For each scale type, at least five different fingering patterns will be illustrated. Being familiar with all the fingering patterns for any scale type will insure the ability to use that scale all over the fingerboard.

All the scale patterns are moveable. This means that they may be moved from fret to fret, with each position giving the scale a new letter name. All circled notes indicate the scale's root - the note that determines the letter name of the scale. The principle is the same as with moveable chords.[1] If pattern #1 for the minor pentatonic scale is played at the fifth fret, it is in the key of A, since the sixth string, fifth fret is an "A" note. (The root notes on the fourth and first strings are also "A" notes.) Play the same pattern at the seventh fret and it is in the key of B, as the sixth string, seventh fret is a "B" note. (If you do not know the names of the notes on all six strings, a diagram indicating this information is included in Lesson 1.)

Once you memorize the scale patterns and see how easy it is to change keys by moving them to different positions on the fingerboard, you probably won't feel tempted to construct scales using the formulas. The scale patterns that you are about to learn are closer related to the actual playing of the instrument. The method of constructing scales using formulas was demonstrated primarily to show you the theoritical side of things. As each different scale type is presented, its formula for construction will also be indicated.

All scale patterns will be illustrated in the following manner:

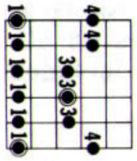


The horizontal lines represent the guitar's six strings. The line closest to the TOP of the page represents the FIRST string (the thinnest and highest pitched string on the guitar). The vertical lines represent the frets. Black dots indicate the placement of fingers, and numbers indicate specific fingerings.

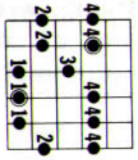
Minor Pentatonic Scale

Formula for Construction: 1, ♭3, 4, 5, ♭7

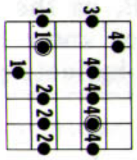
Pattern #1



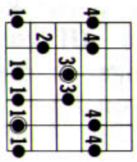
Pattern #2



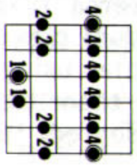
Pattern #3



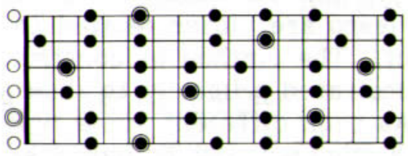
Pattern #4



Pattern #5



Minor Pentatonic Scale Covering Entire Fingerboard. Key of A:



Although the minor pentatonic scale is often referred to as a blues scale, the blues scale is yet another, but very similar scale. The minor pentatonic scale is so named because it is a smaller, five-note version of the seven-note relative minor scale. ("Penta" is derived from "pente", which means five in Greek.) Don't be confused because you see more than five notes in each pattern, the notes are simply repeating themselves.

Most of the repetitive, bluesy sounding licks described earlier are derived from the minor pentatonic scale. This scale seemed to be the mainstay of that "other" generation of rock guitarists like Jimmy Page, Jimi Hendrix, and Eric Clapton. Today's high-tech guitar players such as the late Randy Rhoads, Edward Van Halen, and Gary Moore use this scale also, but they tend to combine it with other scale types. The earlier rock guitarists used the minor pentatonic scale almost exclusively.

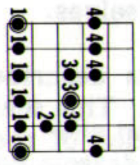
If you study each pattern carefully, you'll see that where one pattern ends, the next one begins. The latter half of pattern #1 is the first half of pattern #2. All the patterns are intertwined in the same manner, fitting together like a puzzle that covers the entire fingerboard. The minor pentatonic scale (as well as all other scale types included in this lesson) has been shown covering the entire fingerboard in the key of A, including the open strings, so you can see how all the patterns fit together. You also may discover solo ideas that you might not have seen looking at each pattern individually.

Use the minor pentatonic scale over the minor triad or power chord of the same letter name. Use the A minor pentatonic scale over an A minor triad or an A power chord. The A minor pentatonic scale can also be used over chords in the key of A minor, when these chords are used in a progression centering around an A minor triad or an A power chord. The minor pentatonic scale will also work over chords in the major key two frets lower. Use the A minor pentatonic scale over chords in the key of G major, again, provided these chords are used in a progression centering around an A minor triad or an A power chord.

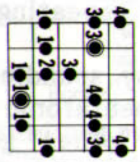
Blues Scale

Formula for Construction: 1, ♭3, 4, ♭5, 5, ♭7

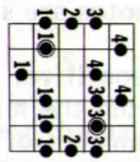
Pattern #1



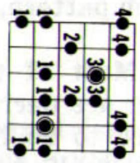
Pattern #2



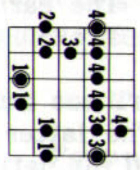
Pattern #3



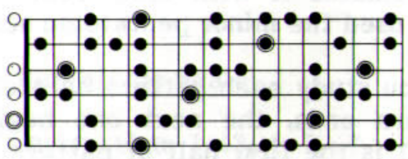
Pattern #4



Pattern #5



Blues Scale Covering Entire Fingerboard. Key of A:



The blues scale contains the same notes as the minor pentatonic scale, with the addition of one note - the flatted fifth. Sometimes termed the "blues note", the flatted fifth has traditionally been used as a "passing tone". In other words, it is used to pass from one note to another, lasting only momentarily. The flatted fifth is used in this manner because it clashes with the natural fifth of the key, a note contained in most chords that the blues scale corresponds with for improvisation. When used as a passing tone, the flatted fifth goes by so quickly that one barely gets a chance to hear this clash.

In recent years, it seems to have become almost a trend among heavy metal guitar players to achieve a haunting, eerie quality in their guitar solos. The flatted fifth is notorious for creating this effect. As a result, today's heavy metal guitarist will resolve to the flatted fifth as well as use it as a passing tone. (To resolve to a note means to end a phrase or lick on that note, usually resulting in its emphasis.)

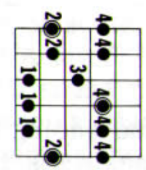
You can avoid shakey territory by emphasizing the flatted fifth in a situation where it won't clash with backround chords or bass lines. The flatted fifth does not necessarily have to be used in a solo. This note can be incorporated into the verse, chorus, or any part of a song where it will create a desirable effect, as the late Randy Rhoads used it during the intro to his classic solo from "Over the Mountain".

The blues scale works over the same chords as the minor pentatonic scale. Just be sure to use the flatted fifth with discretion. Remember, your ear is the true judge. If it sounds good, it works!

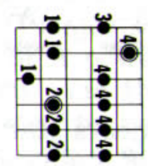
Major Pentatonic Scale

Formula for Construction: 1, 2, 3, 5, 6

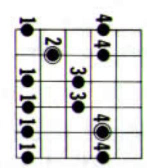
Pattern #1



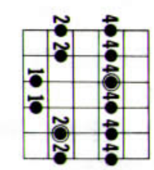
Pattern #2



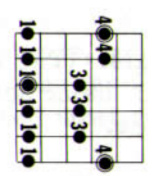
Pattern #3



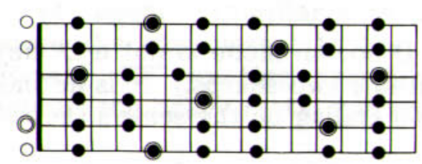
Pattern #4



Pattern #5



Major Pentatonic Scale Covering Entire Fingerboard. Key of A:



The major pentatonic scale relates to the major scale in the same way that the minor pentatonic scale relates to the relative minor scale. The major pentatonic scale is a smaller, five-note version of the major scale. This scale is usually used

over a major triad or power chord for a country or country rock type sound. Use the A major pentatonic scale over an A major triad, A power chord, or a progression in the key of A major that centers around an A major triad or an A power chord.

Before we see how the major scale looks on the fingerboard, lets take a look at how the major scale can be manipulated to produce seven different sounding scales called "modes". Below is the C major scale. All the scale degrees have been numbered.

C	D	E	F	G	A	B	C
1	2	3	4	5	6	7	8

The following names are used to correspond with each degree of the major scale:

C	D	E	F	G	A	B	C
Ionian	Dorian	Phrygian	Lydian	Mixolydian	Aeolian	Locrian	Ionian

The C major scale usually appears starting and ending on the note "C", as illustrated above. If the C major scale started and ended on the note "D", it would be referred to as D dorian.

D dorian mode: D E F G A B C D

The D dorian mode is not a D major scale. (The key of D major contains two sharps.) It is actually a C major scale, only starting and ending on the scale's second degree.

If the C major scale started and ended on the note "E", it would be referred to as E phrygian.

E phrygian mode: E F G A B C D E

The E phrygian mode is not an E major scale. (The key of E major contains four sharps.) It is a C major scale, only

starting and ending on the scale's third degree. Each mode starts and ends on the scale degree corresponding with its modal name. There are seven modes altogether, one for each degree of the major scale. The C major scale appearing in its most common form, starting and ending on the note "C", can also be called the C ionian mode.

Now let's see how modes are used for improvisation. A major scale may be used to improvise over any of the chords contained within its key. If a major scale is played over its I chord, that major scale is referred to as ionian. If a major scale is played over its II chord, that major scale is referred to as dorian. When a major scale is played over its III chord, that major scale is referred to as phrygian, and so forth. The same major scale will produce a different sound over each chord. Therefore, seven different sounding scales, or major scale modes, are available for improvisation.

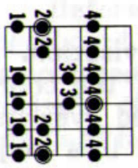
Modes are also helpful in describing the different applications of major scales. For example, a G major scale, F major scale, or a C major scale may be used to improvise over an A minor triad (or A power chord). Each one of these scales will sound different over the A minor chord. If the G major scale is used, it may be referred to as A dorian, because A minor is the II chord from the key of G. If the F major scale is used, it may be referred to as A phrygian, because A minor is the III chord from the key of F. If the C major scale is used, it may be referred to as A aeolian, as A minor is the VI chord from the key of C. Once you become familiar with the quality of each mode, you'll choose the one closest to the sound you desire. The aeolian, dorian, and haunting phrygian are the modes used most commonly by the heavy metal guitarist.

If you carefully examine the fingering patterns for each mode, you will see that a pentatonic scale fits inside each pattern. The major pentatonic scale fits inside the ionian mode (major scale), and the minor pentatonic scale fits inside the aeolian mode (relative minor scale). Also note that the same five fingering patterns are used for each mode; only the roots have been changed. Once you memorize all five fingering patterns, you'll know all seven modes.

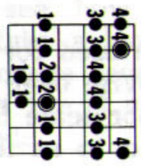
Ionian Mode (major scale)

Formula for Construction: 1, 2, 3, 4, 5, 6, 7

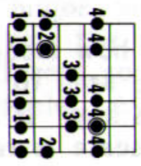
Pattern #1



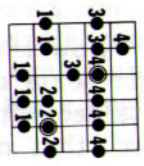
Pattern #2



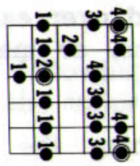
Pattern #3



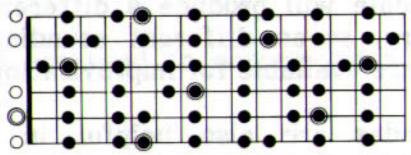
Pattern #4



Pattern #5



Ionian Mode Covering Entire Fingerboard. A Ionian:

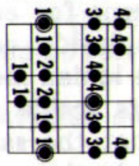


Use the ionian mode over the major 7 chord, major triad, power chord, or chords in the key of the same letter name. Use A ionian over an A major 7 chord, A major triad, A power chord, or chords in the key of A major.

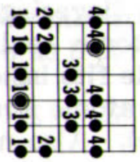
Dorian Mode

Formula for Construction: 1, 2, ♭3, 4, 5, 6, ♭7

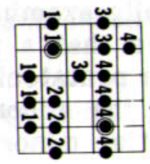
Pattern #1



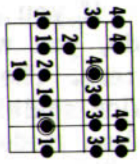
Pattern #2



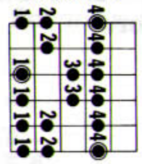
Pattern #3



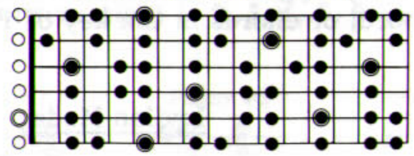
Pattern #4



Pattern #5



Dorian Mode Covering Entire Fingerboard. A Dorian:

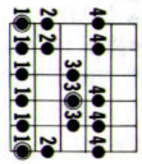


Use the dorian mode over the minor 7 chord, minor triad, or power chord of the same letter name. The dorian mode will also work over chords in the major key two frets lower. Use A dorian over an A minor 7 chord, A minor triad, A power chord, or chords in the key of G major.

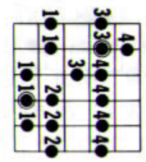
Phrygian Mode

Formula for Construction: 1, ♭2, ♭3, 4, 5, ♭6, ♭7

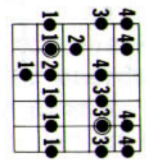
Pattern #1



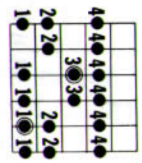
Pattern #2



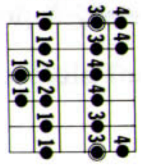
Pattern #3



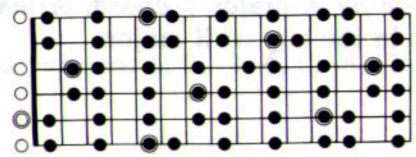
Pattern #4



Pattern #5



Phrygian Mode Covering Entire Fingerboard. A Phrygian:



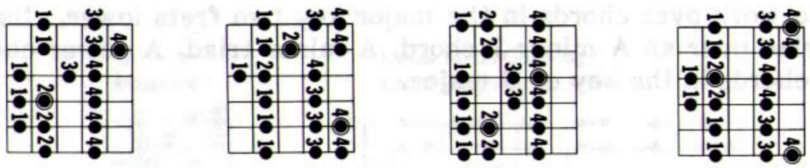
Use the phrygian mode over the minor 7 chord, minor triad, or power chord of the same letter name. The phrygian

mode will also work over chords in the major key four frets lower. Use A phrygian over an A minor 7 chord, A minor triad, A power chord, or chords in the key of F major.

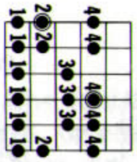
Lydian Mode

Formula for Construction: 1, 2, 3, ♯4, 5, 6, 7

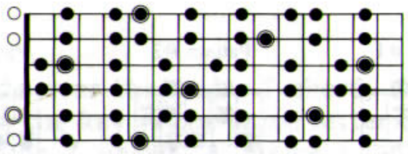
Pattern #1 Pattern #2 Pattern #3 Pattern #4



Pattern #5



Lydian Mode Covering Entire Fingerboard. A Lydian:

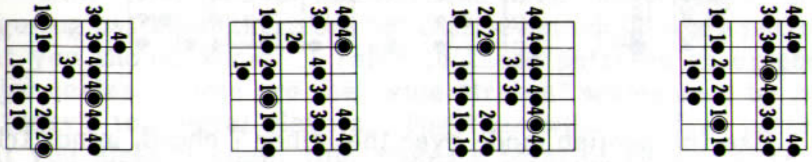


Use the lydian mode over the major 7 chord, major triad, or power chord of the same letter name. The lydian mode will also work over chords in the major key five frets lower. Use A lydian over an A major 7 chord, A major triad, A power chord, or chords in the key of E major.

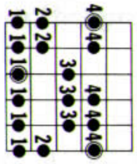
Mixolydian Mode

Formula for Construction: 1, 2, 3, 4, 5, 6, ♭7

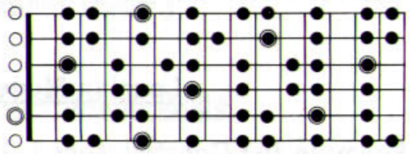
Pattern #1 Pattern #2 Pattern #3 Pattern #4



Pattern #5



Mixolydian Mode Covering Entire Fingerboard. A Mixolydian:



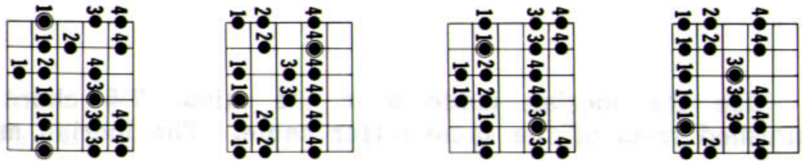
Use the mixolydian mode over the dominant 7 chord, major triad, or power chord of the same letter name. The mixolydian mode will also work over chords in the major key five frets higher. Use A mixolydian over an A7 chord, A major triad, A power chord, or chords in the key of D major.

Aeolian Mode

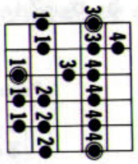
(relative minor scale, natural minor scale, pure minor scale)

Formula for Construction: 1, 2, ♭3, 4, 5, ♭6, ♭7

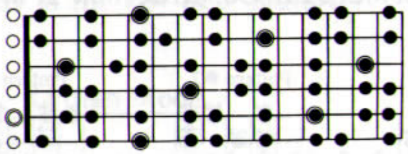
Pattern #1 Pattern #2 Pattern #3 Pattern #4



Pattern #5



Aeolian Mode Covering Entire Fingerboard. A Aeolian:

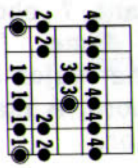


Use the aeolian mode over the minor 7 chord, minor triad, or power chord of the same letter name. The aeolian mode will also work over chords in the major key three frets higher. Use A aeolian over an A minor 7 chord, A minor triad, A power chord, or chords in the key of C major.

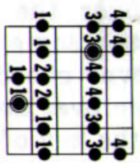
Locrian Mode

Formula for Constructon: 1, ♭2, ♭3, 4, ♭5, ♭6, ♭7

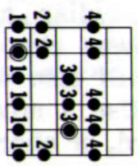
Pattern #1



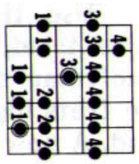
Pattern #2



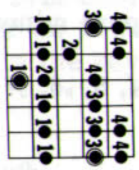
Pattern #3



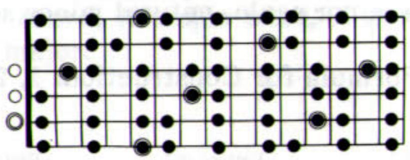
Pattern #4



Pattern #5



Locrian Mode Covering Entire Fingerboard. A Locrian:



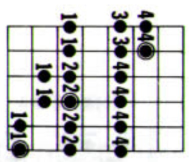
Use the locrian mode over the minor 7♭5 chord or diminished triad of the same letter name. The locrian mode

will also work over chords in the major key one fret higher. Use A locrian over an A minor 7♭5 chord, A diminished triad, or chords in the key of B♭ major.

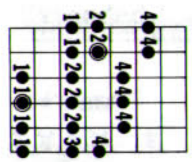
Now that you've learned the five basic major scale fingering patterns, there are another seven major scale patterns that you should know. I refer to these patterns as extended major scales. These are the "wide-stretch" scales used by most of today's top metal players. Together with the five patterns that you already know, this makes a total of twelve different fingering patterns for any major scale mode. (If you experience any difficulty executing the stretches necessary to perform extended major scales, Lesson 3 includes an exercise designed to deal with this problem specifically.)

Extended Ionian Mode

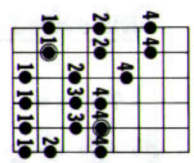
Pattern #1



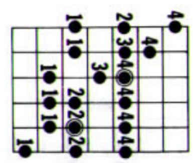
Pattern #2



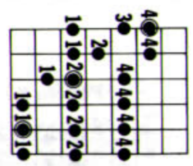
Pattern #3



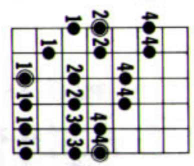
Pattern #4



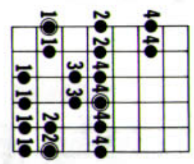
Pattern #5



Pattern #6

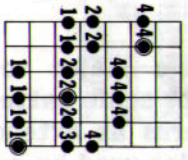


Pattern #7

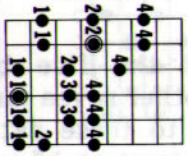


Extended Dorian Mode

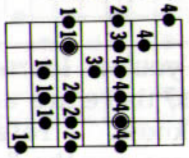
Pattern #1



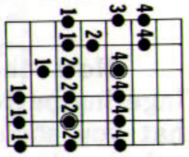
Pattern #2



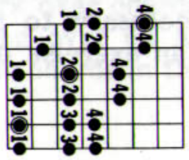
Pattern #3



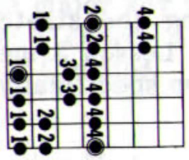
Pattern #4



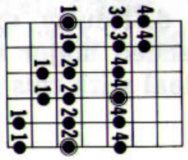
Pattern #5



Pattern #6

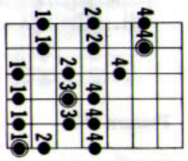


Pattern #7
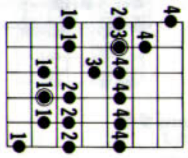


Extended Phrygian Mode

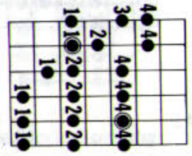
Pattern #1



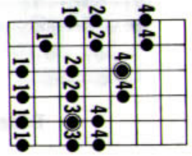
Pattern #2



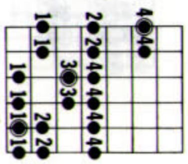
Pattern #3



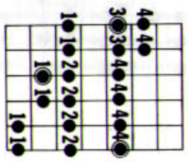
Pattern #4



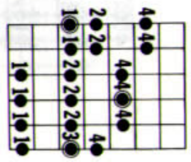
Pattern #5



Pattern #6

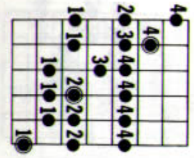


Pattern #7

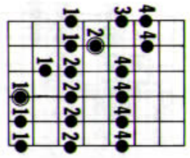


Extended Lydian Mode

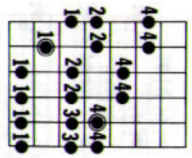
Pattern #1



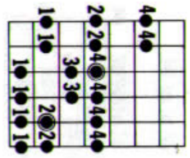
Pattern #2



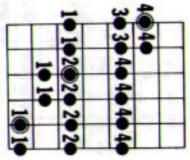
Pattern #3



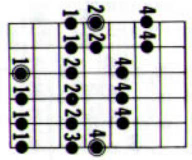
Pattern #4



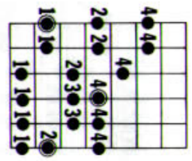
Pattern #5



Pattern #6

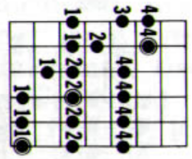


Pattern #7

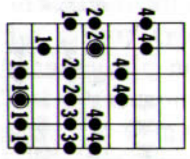


Extended Mixolydian Mode

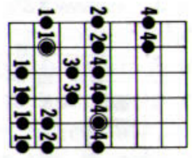
Pattern #1



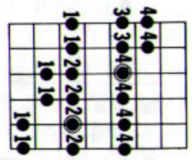
Pattern #2



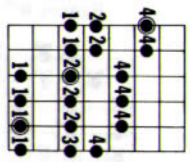
Pattern #3



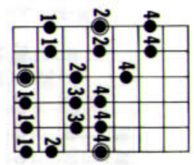
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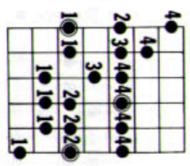
Pattern #5



Pattern #6

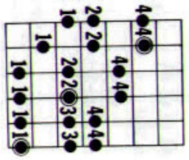


Pattern #7

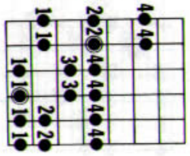


Extended Aeolian Mode

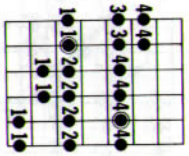
Pattern #1



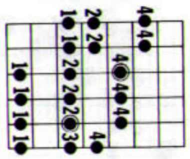
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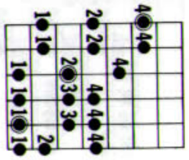
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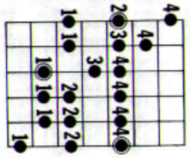
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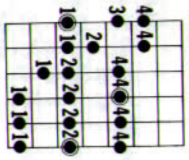
Pattern #5



Pattern #6

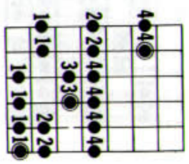


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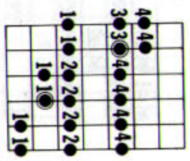


Extended Locrian Mode

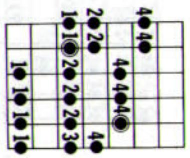
Pattern #1



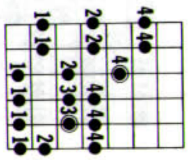
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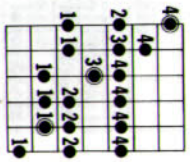
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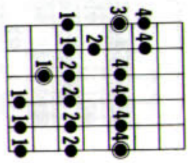
Pattern #4



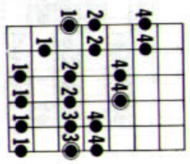
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Pattern #6



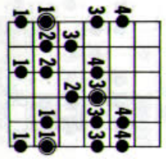
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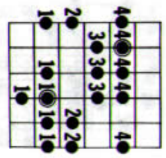
Harmonic Minor Scale

Formula for Construction: 1, 2, ♭3, 4, 5, ♭6, 7

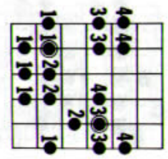
Pattern #1



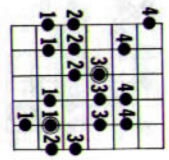
Pattern #2



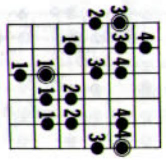
Pattern #3



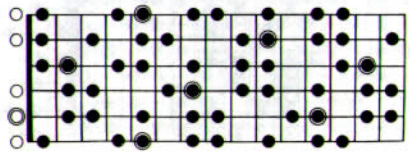
Pattern #4



Pattern #5



Harmonic Minor Scale Covering Entire Fingerboard. Key of A:

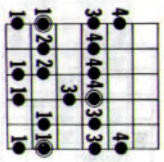


The harmonic minor is another sinister sounding scale used favorably by guitarists like Ritchie Blackmore, Yngwie Malmsteen, and the late Randy Rhoads. Use the harmonic minor scale over the minor triad or power chord of the same letter name. Use A harmonic minor over an A minor triad or an A power chord. The A harmonic minor scale can also be used over D minor, E major, or F major, when these chords are used in a progression centering around an A minor triad or an A power chord.

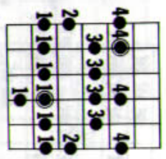
Melodic Minor Scale (Ascending)

Formula for Construction: 1, 2, ♭3, 4, 5, 6, 7

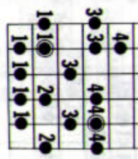
Pattern #1



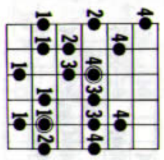
Pattern #2



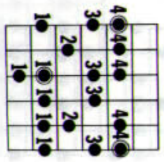
Pattern #3



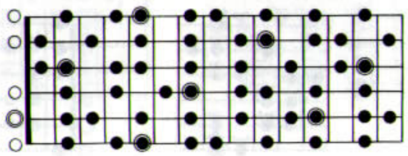
Pattern #4



Pattern #5



Melodic Minor Scale Covering Entire Fingerboard. Key of A:



The melodic minor scale isn't used by too many of today's high energy guitarists, but some players, like Yngwie Malmsteen, incorporate this scale into their guitar solos.

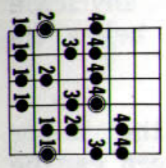
The melodic minor scale actually contains different notes when it is played ascending (from lower octave to higher octave) than when it is played descending (from higher octave to lower octave). The descending melodic minor scale contains the same notes as the relative minor scale (aeolian mode). When the melodic minor scale is referred to from an improvising standpoint, the ascending variation (sometimes termed the "jazz minor" scale) is usually used.

Use the ascending melodic minor scale over the minor triad or power chord of the same letter name. Use A melodic minor over an A minor triad or an A power chord. The A melodic minor scale can also be used over D major and E major, when these chords are used in a progression centering around an A minor triad or an A power chord.

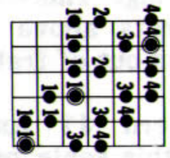
Diminished Scale

Formula for Construction: 1, 2, ♭3, 4, ♭5, ♭6, 6, 7

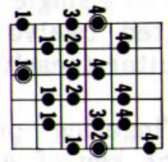
Pattern #1



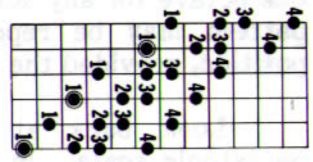
Pattern #2



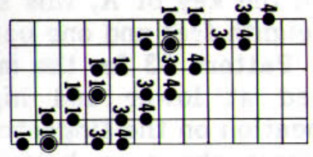
Pattern #3



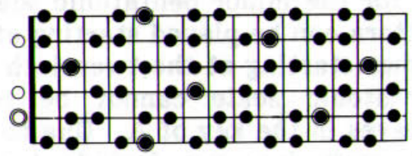
Pattern #4



Pattern #5



Diminished Scale Covering Entire Fingerboard. Key of A:



The bizarre sounding diminished is yet another scale which possesses a haunting quality. Use the diminished scale over a dominant chord, a major triad when it is the V chord, or a power chord that functions as a V chord. The diminished scale must be one fret higher than the key of the chord. Use the A diminished scale over an A♭7 chord, an A♭ major triad, or an A♭ power chord.

Of course, the diminshed scale works over a diminished chord. You won't be improvising over too many diminished chords in heavy metal, but in case the situation arises, use the diminished scale over the diminished chord of the same letter name. Use the A diminished scale over an A diminished chord.

The diminished scale has four roots. A diminished scale in the key of A is also in the key of C, E♭, and G♭.

A number of the scale patterns presented in this lesson may be played at two positions on the fingerboard for the same key. If each note from a scale pattern is played one octave lower or higher, the entire scale pattern itself may be played one octave lower or higher. Twelve frets span the distance of one octave for any note on a single string. Therefore, any scale pattern may be repeated twelve frets above or below its position, provided the guitar doesn't run out of frets.

Look back at fingering pattern #1 for the minor pentatonic scale. In the key of A, this scale pattern can be played at the fifth fret and one octave higher (twelve frets higher) at the seventeenth fret. Now look at fingering pattern #2 for the minor pentatonic scale. In the key of A, this scale pattern can be played starting at the eighth fret and one octave higher starting at the twentieth fret. Pattern #3 for the minor pentatonic scale cannot be repeated at lower and higher octaves in the key of A. Due to its location on the fingerboard, the neck does not include twelve frets above or below its position. However, this is not the case for a number of other keys. For example, in the key of E, pattern #3 may be played starting at the fifth fret and one octave higher starting at the seventeenth fret.

Always keep in mind the possibility of repeating scale patterns at lower and higher octaves, so you can use the scales that you've learned to cover every last inch of the guitar fingerboard!